09/314001

Abstract of The Disclosure

Mineral fibers made of natural basalt materials are produced by preheating basalt to a temperature of between 150 and 900 °C, loading the preheated basalt into a melting furnace, melting the basalt to form a glass mass, moving the melted glass mass through a stabilization zone of the melting furnace until a fiber production temperature of t^{melt} + (50 - 250 ° C) is reached, further stabilizing the glass mass in a feeder at a temperature of 1250 to1450°C to obtain a glass mass having the composition

$$\frac{Al_2O_3 + SiO_2}{CaO + MgO} \geq 3 \qquad \frac{FeO}{Fe_2O_3} \geq 0.5$$

$$\frac{2Al_2O_3 + SiO2}{2\,Fe_20_3 + FeO + CaO + MgO + K_2O + Na_2O} > 0.5$$

The further stabilized glass mass is introduced to a feeding unit, and the fibers are drawn through dies, oiled, and wound onto reels. The apparatus includes a melting furnace and a basalt dosing unit which includes a heat exchanger connected to the firebox of the furnace. The furnace has a firing space where the basalt is melted to form a glass mass, and a stabilization zone where the mass glass is stabilized. A feeder receives molten glass from the stabilization zone and supplies the glass to dies from which the fibers are drawn. Mechanisms are provided for lubricating the fibers and winding them onto reels. The invention shortens the industrial cycle and increases the fiber resistance and thermal endurance.